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# CONCEPT PAPER

## Statewide Water Analysis Network

### INTRODUCTION

California must significantly improve its analytical tools and data to effectively evaluate the costs, benefits, and tradeoffs of alternative water management strategies and to promote integrated regional water management. Recent water bonds, the California Water Plan (CWP), and the CALFED Bay-Delta Program have all highlighted the need for greater emphasis on regional decision making in water planning. More accurate analytical tools and data along with better information management can reduce many uncertainties about current and future statewide and regional water resources such as:

- How water supplies, demands, and quality change in response to different resource management strategies;
- How to maintain and restore ecosystem health; and
- How California can adapt its water system to reduce controversy and conflicts.

The California Department of Water Resources (DWR), through the Water Plan, proposes to organize an effort to improve California's analytical capabilities for water management. Improving these capabilities will require significant participation by the many entities that generate information useful for the CWP or use information in the CWP to make decisions. A California Water and Environmental Modeling Forum (CWEMF) report<sup>1</sup> identifies a long-term strategy for improving California's analytical capabilities. To improve the analytical capabilities in the Water Plan and other statewide planning efforts, California must conduct the following three broad activities<sup>2</sup> immediately and simultaneously:

- Promote Collaboration
- Facilitate Information Exchange
- Improve Quantitative Information

Perhaps the most critical activity identified by DWR and CWEMF is to engage interested parties throughout the state to establish an institutional network to leverage available resources, identify priorities, and improve our shared quantitative capability regarding California's water management system.

On November 22<sup>nd</sup>, 2005, DWR conducted a workshop to discuss the formation of a Statewide Water Analysis Network (SWAN). The purpose of SWAN as proposed is to assist California water managers and stakeholders in implementing the analytical tool

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<sup>1</sup> "A Strategic Analysis Framework for Managing Water in California", California Water and Environmental Modeling Forum, September 2005. <http://www.cwemf.org>

<sup>2</sup> These activities are described in more detail in a concept paper, "Recommended Next Steps for Improving Quantitative Information for the California Water Plan" available in the Volume 4, Data and Analytical Tools section of California Water Plan Update 2005. <http://www.waterplan.water.ca.gov>

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and data improvements described above. The workshop participants, which included over 20 analytical tool and data management experts, represented a wide range of federal, State, and local governments, academic, and environmental organizations. The participants generally agreed that California could benefit by such a network and they recommended that DWR convene specific pilot studies of limited scope to test the SWAN concept. The concept could then be further developed in the context of accomplishing and perhaps extending these project goals. This paper describes the proposal as discussed at the November 22, 2005 workshop and subsequent feedback by the California Water Plan Advisory Committee at a December 9, 2005 meeting.

## **MEMBERSHIP**

Workshop participants recommended that initial participation in SWAN be ad hoc based on the expertise and interest in the 3 pilot studies described below. Potential participants could include local, State, and federal water and natural resources agencies, universities, regional forums, related non governmental organizations, technical consultants, and California native tribes.

## **ORGANIZATIONAL STRUCTURE**

Workshop participants recommended that ad hoc work groups be formed to implement the three pilot studies described below. These work groups should be large enough to have the necessary expertise, but not so large as to weigh down the ability to make progress. Different entities would work on each pilot depending on expertise and interest. Decisions would be made by consensus. The work groups will report back to larger stakeholder groups like the CWP Advisory Committee, CWEMF, and the respective agencies and organizations.

## **ROLES AND RESPONSIBILITIES**

Workshop participants recommended that DWR facilitate work on the three pilot studies described below. DWR will solicit participation from agencies and organizations based on their expertise and level of interest.

## **PILOT STUDIES**

Workshop participants identified the following three short-term, tangible activities for SWAN to address some of the critical needs facing California water planners.

- Pilot Study 1 - Integrate data and information from California Urban Water Management Plans (UWMPs) regionally and for the California Water Plan.
- Pilot Study 2 - Develop a shared schematic (diagram) and description of the physical features and connections that make up the regional and statewide water management systems in California.
- Pilot Study 3 - Develop a shared conceptual basis and analytical approach to describe, estimate, and forecast water demands in California.

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Implementation of Pilot Study 1 – A work group will be formed to develop a pilot program to integrate information between UWMPs and the CWP. The work group will collaborate with entities in a specific area to locate a geographic region covered by several UWMPs and one or more CWP study areas (either Detailed Analysis Units or Planning Areas). The work group will compare water use and supply components identified from a recent year for both UWMPs and the CWP and identify ways that the analysis can be better integrated.

Implementation of Pilot Study 2 – A work group will be formed to develop a common physical schematic of California's water management system to form common linkages of information sharing among local, regional, State, and federal planning efforts in California. The intent is to provide a common spatial framework for hydrologic, economic, and water management data and studies, including scenario and water portfolios studies. DWR will explore potential contracting mechanisms to assist with this task. Activities include the following:

- Review the geographic representation, network flow diagrams (where available), and desirable definitions and descriptions of physical network elements.
- Provide recommendations and protocols for developing a geographic and temporal representation of California's water management systems and definition, description, and documentation of physical network elements to permit consistent analysis at statewide and regional scales.
- Recommend assurances and protocols to prevent unlawful or unintended use of information.
- Solicit feedback from the CWP Advisory Committee and other stakeholder venues on the proposed recommendations.
- Develop a common physical schematic of California's water management system, stored updated, documented, and made available electronically. It is likely that the schematic will have layers of detail to facilitate coarse and detailed analysis, as well as protection of security-sensitive details.
- Develop a strategy for how best to roll out and update the common schematic and how to encourage water planners to apply it to their activities.

Implementation of Pilot Study 3 – A work group will be formed to develop a conceptual design for the description of significant factors used to determine California water demands. DWR will develop an initial conceptual design of water uses to document existing analytical methods applied by DWR. This initial design will serve as the starting point for discussion by the work group to develop an ideal representation of water demands in California and the relationship to significant factors. The ideal representation will focus on the best technical representation of the factors that comprise the determination of water demands.